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# Personal and professional attitudes of architecture students

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**Abstract**

The aim of the present study is to determine "personal and technical capacities of architecture students to execute architecture as a profession". 75 Architecture students of Konya Selcuk University Architecture Faculty, Department of Architecture joined in this qualitative study.Data collected using open ended questions were analysed using content analysis. In this study our aims were to first determine information of the participants about "architecture profession and the required abilities to become an architect" before enrolling to the Architecture Department, then their opinions about technical and personal skills which are vitally necessary for being architect and finally the technical and personal qualities which they think they possess and their perceptions about their skills which make them efficient or in efficient architecture students.These assessments of the students about their self_efficacy were given as the findings of the research. The findings of our study are important as they exhibit how the architecture students consider themselves, their professional development and the reflections about the education they receive.


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*Keywords:* Architecture Students, Self Efficacy, Technical Skills, Personal Skills.

## 1. Introduction

The century we live in is a particular period of time when any advance is rapidly experienced, cities augment and the necessities to be met accordingly both outnumber and diversify to a great extent. All these evolvements alter

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students' expectations from the future. Business life changes swiftly and so do the requirements in the realms of employment correspondingly. These rapid movements have also caused changes in the choice of profession. Making up one's mind about profession beginning to be identified during childhood period encapsulates developmental stages elapsing until having a profession (Özgan, 2006). As a result of these changes, students' individual, social, professional and academic developments are constantly influenced (Hiebert, Kemeny&Kurchak 1998;akt:Lee, 2007, s.1). Another vital change experienced in accompany with these biological alterations is the evolvements experienced during an individual's own developmental stages. The most significant period of vocational tendency of an individual is the period of education. Concept of Self-efficacy is preconditioned in the individual development within the developmental stages of a child. This concept means that the individual is able to tackle with a matter and acquire desirable outcomes (Pajares,1996).

Belief in Self-efficacy is defined as the major determinant of behaviours and behavioural changes; Bandura's studies put forward that beliefs respecting individual skills not only change behaviours, but influence motivation and success (Henson, 2001). According to Albert Bandura (1994, 2004), while self-efficacy is the belief in the feeling of 'I can', desperation is just the reverse of this feeling, 'I can't'. Children whose self-efficacy is rather high can use such expressions as 'I can succeed in this subject' or 'I can carry out this study' in their lessons and studies. We can, in the same way, expect those who have rather high self-efficacy to use such expressions either during deciding on majoring architecture or already studying in architecture department (Kurbanoğlu, 2004).

Barry Zimmerman (2002) has adjusted the concept of self-efficacy to a number of aspects of students' success. Through this point of view, self-efficacy influences students' activity preference as well. Students whose self-efficiency related to learning is low may avoid many learning tasks, especially those which are assumed to challenge them. Those with quite high self- efficacy, on the contrary, willingly take part in learning activities. As a result of these studies, their confidence obtained through improvement tasks rises to a great extent. This accordingly intensifies their belief in their self-efficacy (Zimmerman2002). Students with quite high self-efficacy also tend to make more efforts to study and struggle more, compared to those with low self-efficacy. These efforts turn accordingly into contentment when they get the feedback.

Students' self-efficacy and their awareness of it is of utmost significance, since the education provided in architecture department aims to improve both knowledge and skills, so it is possible to expect this increased awareness to improve students' success in this department correspondingly.

The objective of this study is to analyse the students' perceptions of self-efficacy related with technical skills they assume to be required for the profession of architecture and to have already in themselves in accordance with the students' point of view. In this sense, the students were asked for their comments to the following questions:

- What technical skills do you think are required in order to be a successful architect?
- Do you think that you possess the technical skills required for being an architect? Or which technical skills do you think you behold more, compared to others?
- What individual skills (talents) do you think are required to be a successful architect?
- Do you think you behold the necessary individual skills? which individual skills do you think you are more competent on, compared to others?

## 2. Research Method

The research is based on qualitative research method. The most significant characteristics of this type of method are the ability to adapt to natural environment, beholding a holistic approach, researcher's undertaking a participative role, flexibility in the pattern of the research and having an inductive analysis (Yıldırım and Şimşek,2005). Qualitative researches focuses much on the meanings of searched themes, experiences and descriptions. The study consists statements made and observed completely by participants including sophisticated and elaborate data (Coolican,1992; Yıldırım and Şimşek,2005).

### *2.1. Participants*

In this research, purposeful sampling method had been used. The reason for the preference of this method is simply gathering more detailed information as to the perception of technical skills and individual features that

students who prefer to study architecture at university and studying already at the 1st, 2nd, 3rd or 4th grades consider to have with them required for architecture as a profession.

In order to select students for purposeful sampling, a particular criterion has been identified (Yıldırım ve Şimşek,2005). The criterion for selecting students and the study group is applying this process on architecture students eager to participate in the study after gathering enough information about the research. The research has been carried out with 80 students who have been interviewed in Architecture Department at the Faculty of Architecture, Selçuk University. 5 students decided not to go along with the interview and the study has been completed with 75 students in total 56 of whom are female and 19 are male. 44 of these students are observed to have preferred to major architecture at university upon graduating from Anatolian High School, 8 from Science High School, 2 from Super High School, 12 from High School, 7 from Anatolian Teacher Training High School and 2 of them from Anatolian Islamic Divinity High School.

*2. 2 Semi-Structured Interview Method*

Semi-structured interview method has been used as the data gathering technique and the related literature has been scanned. Occupational choice, vocational development process, architecture as a profession, technical skills required by architecture profession and individual characteristics as well as perception of self-efficacy were especially focused as literature elements. Based on these data, themes of technical skills required for architecture and individual characteristics which students of architecture consider to have were focused on. Semi-structured interview form has been developed with the questions able to measure these themes. The interview form have been reverted to five postgraduate lecturers at the Faculty of Architecture, Selçuk University so as to confirm its validity and the semi-structured interview form has been formed in accordance with these lecturers' assessments. The form has been then subjected to pilot scheme with ten participants and made ready for application after the last corrections made according to the results. The interview forms were given back to the participants in case they had things to add or remove from the form. Some of the students removed some of the information from the form, while others had extra to add. Including direct quotations from the participants and making expressions via them over the results are of much importance for the validity of the form. Therefore, some of the data gathered from this research were directly released in order to boost its credibility (Wolcott, 1990).

*2.3 Gathering Data*

Participants for the interviews were identified based on willingness. The way the study would be carried out and the objective of the research were explicitly stated via an introduction during the interviews. Moreover, the fact that participants' credentials were not demanded was focused and written interview forms were used during the interviews lasting taking between 30 and 45 minutes.

*2.4. Analysis and Assessments of the Data*

These data gathered via content analysis method have been analysed. Reaching the concepts and correlations that can explain the gathered data is the essence of content analysis. Content analysis is carried out by organizing and assessing the data that are akin to each other in the framework of certain concepts and themes. For this reason, regulations were made in harmony with the concepts came up after conceptualizing the gathered data and accordingly the themes that were to explain the data were identified (Tavşancıl&Arslan,2001; Yıldırım &Şimşek,2005). Views of interviewers were written on the semi-structured forms and each form put into order in successive numbers. Words, sentences and paragraphs were coded via conceptualizing in order to detect the expressions intended to be explained during assessing of the data (Tavşancıl&Arslan,2001). Coding was carried out in the framework of the objective and questions of the interviews. Categories are to be used for analysing and comparing varied meanings in a sub-category formed at the lowest rank. Wide varieties of these articles in categories conveys the qualitative analyses just as they are (Coolican,1992). Such themes as 'technical skills considered to be required for architecture', ' technical skills students consider to already have with them', 'characteristics required for an architect', 'characteristics students consider to already have with them' which were

determined in accordance with the related literature were formed for this research. These themes were divided into sub-categories. Percentages were also computed in order that the categories can be more explicit and easy to understand. Each category includes both percentages and views of sample students. However, these percentages were not included to enable statistical comparisons as in quantitative researches. Percentages in qualitative researches are typically and naturally used for processing and suggesting ideas (Coolican, 1992).

## 2. Findings

Table 1: Technical Skills Considered to Be Required for a Successful Architect

| | The number of Students Beholding this niew (N=75) | Values of categories in percentage | Examples of Students' Thoughts |
|---|---|---|---|
| Ability To Draw- Drafting (Perspective, Freehand Pencil Drawing…) | 38 | 50,67 | "It is necessary to learn drawing techniques to be a successful architect.'' (A1's point of view) |
| 3 Dimensional Imagination- Skill To Draw 3 Dimensional | 27 | 36,00 | "must see in 3 dimensions''3 (A8's point of view) |
| Being Competent With Computers And Computer Programs (Autocad, 3dmax...) | 25 | 33,33 | 'Must be able to use computer programs properly' (A2's view) |
| Model Making | 16 | 21,33 | (Being able to make models' (A5's view) |
| Digital (Mathematics) Skills | 15 | 20,00 | 'Must have high level of mathematical intelligence in order to be a successful architect) (A1's view) |
| Hand Craft | 14 | 18,67 | 'Should have a considerably delicate hand craft. (B5's view) |
| Design Intelligence (Layout Design Etc.) | 10 | 13,33 | 'Should have a high level of design intelligence and creativity' (A5' view) |
| Planning Competence | 2 | 2,67 | 'Should have an ability to procure a spatial organization' (I3's view) |
| Ability To Detect Details | 1 | 1,33 | 'Should be able to look in more details when looked at a building or a project rather than only seeing doors and windows just like ordinary people do. (H8' view) |
| A Good Knowlwdge Of Materials | 1 | 1,33 | 'Knowledge of materials is isignificant for the ability to choose' (I2's view) |
| Ability To Find Solutions | 1 | 1,33 | 'Being able to find the best and easiest solutions to problems' (J1's view) (J1 in görüşü) |

Analyzing Table 1, 11 categories are seen to have been formed pertaining to the theme of 'Technical skills required for an architect'; percentages for Ability to draw- Drafting (Perspective, Freehand pencil drawing…) is %50,67, 3 dimensional imagination- Skill to draw %36.00, Being Competent with computers and computer programs (Autocad, 3dmax...) %33.33, Model Making %21.33, Digital (Mathematics) Skills %20.00, Hand Craft %18.67, Design Intelligence (Layout design etc.) %13.33, Planning Competence % 2.67, Ability to detect details % 1.33, A good knowlwdge of materials % 1.33 and Ability to find solutions is % 1.33. There are also example sentences about the categories in the table.

Table 2. Technical Skills Students Consider They Already Have

| | The number of students sharing this view (N = 75) | Percentages of categories | Examples of Students' Thoughts |
|---|---|---|---|
| Ability To Draw- Drafting (Perspective, Freehand Pencil Drawing…) | 18 | 24,00 | 'I think I have the ability to draw among technical skills.' (A4's view) |
| Being Competent With Computers And Computer Programs (Autocad, 3dmax...) | 11 | 14,67 | The fact that I love using computer may be advantageous for learning computer programs.' (D3's view) |

| | | | |
|---|---|---|---|
| Model Making | 10 | 13,33 | 'I can be competent with model making and calculating' (A3's view) |
| Digital (Mathematics) Skills | 8 | 10,67 | 'I think I have the digital intelligence required to be a good architect' (A1's view) |
| 3 (2) Dimensional Imagination- Skill To Draw | 8 | 10,67 | I'm good at thinking in 3 dimensions' (A1's view) |
| Designing | 5 | 6,67 | I can design in all dimensions and imagine its 2 and 3 dimensions (A7's view) |
| Hand Craft, Coordination Of Eyes And Hands. | 2 | 2,67 | (I'm good at coordinating my eyes and hands' (I3's view) |

In Table 2, 7 categories were formed pertaining to the theme of 'Perceived Technical Skill'. These are ability to draw- Drafting (Perspective, Freehand pencil drawing…) %24.00, being competent with computers and computer programs (Autocad, 3dmax...) % 14.67, model making % 13.33, digital (mathematics) skills % 10.67, 3 (2) dimensional imagination- skill to draw %10.67, designing %6.67 and hand craft, coordination of eyes and hands %2.67.

Table 3: Individual Features Required For a Successful Architect

| | The number of students sharing this view (N = 75) | Percentages of categories | Examples of Students' Thoughts |
|---|---|---|---|
| Effective Communication Skill, Self-Expression | 38 | 50,67 | Language skills should be remarkably high' (B5's view) |
| Being Patient, Ambitious, Determined | 24 | 32,00 | 'Should be ambitious and determined' (A1's view) |
| Creative Thinking (High Imagination) | 18 | 24,00 | 'Should have a considerable imagination power to be a successful architect' (A1's view) |
| Being Social, Inclined To Group Work | 14 | 18,67 | 'Should be inclined to group work' (B4's view) |
| Developing Empathy | 13 | 17,33 | 'Should develop empathy' (B2's view) |
| Being Respectful | 12 | 16,00 | 'Should be respectful to both nature and people' (A1's view) |
| Being Extraordinary (Authentic), Thinking Inventively | 12 | 16,00 | 'Should have a distinct point of view to life, events, everything' (A2's view) |
| Being Open To Innovations (Open To Learning) | 12 | 16,00 | 'Should be able to adapt to innovations' (A6's view) |
| High Level Of Leadership | 10 | 13,33 | 'Should have a leader's qualifications and compatible with group work' (A7's view). |
| Being Dependable, Honest | 8 | 10,67 | 'According to me, an architect should be able to give confidence to those who are concerned' (D3's view). |
| Being Deliberate,Tidy, Meticilous | 7 | 9,33 | 'Should be or at least try to be meticulous' (A8' view) |
| Being A Good Observer | 5 | 6,67 | 'Should read a lot and make constant observations (D2's view) |
| Welcoming Criticism | 4 | 5,33 | 'Should be able to criticize him/herself and trust his/her work' (D4's view) |
| Being Tolerative | 3 | 4,00 | 'Should be tolerative' (A3's view) |
| Making Practical Solutions | 3 | 4,00 | 'Should be able to make practical solutions. (D1's view) |
| Being Forward-Looking, Making Accurate Prognoses | 3 | 4,00 | 'Should be able to foresee the results of the work'. (D9's view) |
| Being Sympathetic | 1 | 1,33 | Should have a sympathetic character (I3's view). |

| | | | |
|---|---|---|---|
| A High Sense Of Aesthetic | 1 | 1,33 | Should have a high sense of aesthetic. (I3's view) |
| High Self-Confidence | 1 | 1,33 | 'Having high level of self-confidence is another crucial matter. (I7's view) |
| Being Resistant To Stress | 1 | 1,33 | 'Should be resistant to stress. (I7's view) |

In Table 3 there exist 20 categories under the theme of 'Individual Features Required For a Successful Architect'. These are Effective Communication Skill, Self-expression %50.67 , Being Patient, Ambitious, Determined %32.00 , Creative Thinking (High Imagination) %24.00 , Being Social, Inclined to Group Work %18.67 , Developing Empathy %17.33 , Being Respectful % 16.00, Being Extraordinary (Authentic), Thinking Inventively % 16.00, Being Open to Innovations (Open to Learning) % 16.00, High Level of Leadership % 13.33, Being Dependable, Honest % 10.67, Being Deliberate, Tidy, Meticulous %9.33, Being A good observer %6.67, Welcoming Criticism %5.33, Being Tolerative %4.00, Making Practical Solutions %4.00, Being Forward-looking, Making Accurate Prognoses %4.00, Being Sympathetic % 1.33, A High Sense of Aesthetic % 1.33, High Self-Confidence %1.33 , Being Resistant to Stress %1.33.

Table: 4: Individual Qualifications Students Consider to Behold

| | The number of students sharing this view (N = 75) | Percentages of categories | Examples of Students' Thoughts |
|---|---|---|---|
| Effective Communication Skill, Self-Expression | 11 | 14,67 | 'I'm improving in terms of communication and exchanging ideas' (E6 's view) |
| Creative Thinking (High Imagination) | 10 | 13,33 | 'My imagination is highly improved' (A1 's view) |
| Being Social, Inclined To Group Work | 9 | 12,00 | 'I'm good at group work and organisations' (C3 's view) |
| Developing Emphaty | 8 | 10,67 | 'I don't have all. I can develop emphathy (A5 's view) |
| Being Patient, Ambitious, Determined | 6 | 8,00 | 'I'm a patient and determined person.' (D1's view) |
| High Level Of Leadership | 4 | 5,33 | "I think I have the soul of a leader.' (B2 's view) |
| Loves And Enjoys Working | 3 | 4,00 | I enjoy projects and working. These make me superior to others. (D5's view) |
| Being Open To Innovations (Open To Learning), Loves Making Research | 2 | 2,67 | 'I'm good at suggesting new ideas and I welcome innovations'. (A1's view) |
| Crisis Management, Problem Solving Skills | 2 | 2,67 | 'I'm gradually improving in crisis management'.(B5 's view) |
| Careful, High Level Of Awareness | 2 | 2,67 | 'I'm careful'.(H2's view) |
| Tolerative | 1 | 1,33 | 'I think I'm tolerative. Furthermore, my tolerance sometimes overwhelms my ideas and makes me give in. (A8 's view) |
| Distinct (Original) Being Able To Think Authentically | 1 | 1,33 | 'I think I'm authentic. At least, I can blend my own design out of other works. (A8's view) |
| Able To Foresee | 1 | 1,33 | I think I'm patient and good at systematically thinking and foreseeing'. (E1's view) |
| Merciful | 1 | 1,33 | I think I'm better than many people in terms of mercy.' (E7 's view) |
| Interest For Fashion And Decorations, Aesthetic | 1 | 1,33 | 'I'm very interested in modern decorations and fashion' G2's view) |
| Planned, Tidy | 1 | 1,33 | 'The field I'm the best for certain is planned working and tidiness'.( H7's view) |
| Responsible | 1 | 1,33 | 'My individual competence is being hardworking and responsible' (H8's view) |

In Table 4, there are 17 categories in the theme of 'Perceived individual qualifications'. These are Effective Communication Skill, Self-expression %14.67, Creative Thinking (High Imagination) % 13.33, Being social,

Inclined to Group Work %12.00, Developing Emphaty % 10.67, Being patient, Ambitious, Determined %8.00 , High Level of Leadership % 5.33, Loves and Enjoys Working %4.00, Being open to Innovations (Open to Learning), Loves Making Research % 2.67, Crisis Management, Problem Solving Skills %2.67, Careful, High Level of Awareness %2.67, Tolerative %1.33, Distinct (original) Being able to think Authentically %1.33, Able to Foresee %1.33, Being merciful %1.33, Interest for Fashion and Decorations, Aesthetic %1.33, Being Planned, Tidy %1.33, Being Responsible %1.33.

## 4. Discussions

The perception pertaining to technical skills and individual qualifications students of architecture consider to be required by architecture as a profession and consider they already have pose many variations and diversities in the themes related with this perception and in the categories of the themes. The discussion part of the research has been built based on the four themes (Technical skills required for an architect, perceived technical skills, Individual qualifications required for an architect, Perceived individual qualification) and the categories of these themes. A proper discussion has been made based on these themes.

### *1.1. The Theme of Technical Skills Required For an Architect*

Over an half of the students participated in in the research have stated that the most important technical skill is Ability to draw- Drafting (Perspective, Rough Copy, Pencil drawing…), 3 dimensional imagination- Skill to draw follows it and Being Competent with computers and computer programs (Autocad, 3dmax...) is the third one in rank. It ıs figured out from this theme that skills related with drawing are the most important skills required for an architect. The article in UIA/UNESCO's record of educational requirements of an architect which focuses on the fact that teaching computers and softwares and using them efficiently are of utmost importance during the education of an architect has parallels with the findings of our research. Model Making comes the fourth in rank as students regard as the supplementary of the formers. The reason why they think so is that the courses they had to do during their architecture education led them to question their technical skills on this subject. Another striking category in this theme chart is the ability to detect details, a good knowledge of materials and ability to find solutions; although they are essential for an architect's education, students do not pay that much attention.

### *1.2. Theme of Perceived Technical Skills*

This theme comprises seven categories. This category is paralleled with the categories of the previous theme. Students think that they already have the skills they consider essential for an architect. Almost half of the students who think Ability to draw- Drafting (Perspective, Freehand pencil drawing…) is essential for an architect consider they are already competent with this skill. However, although Being Competent with computers and computer programs (Autocad, 3dmax...) is also regarded essential for an architect by half of the students, the number of students considering they behold this skill is about the half of this ratio. The main reason for this is the fact that the students do not have the adequate confidence in themselves required for this skill. This also may be caused by the lack of experience, so students should be encouraged to various practising environments where they can improve these skills and do more practice.

Another striking element arises in the category of '3 dimensional imagination'. While students regard this category as the second the most significant skill required for an architect, the number of the ones considering to have this skill is less than the one-thirds of these students. In other words, two-thirds of the students feel insufficient on this subject. The reason for this is also thought to be the lack of experience. These qualifications which could be supported during education period are projected to be skills rather than talents.

### *4.3. The Theme of Required Individual Qualifications for an Architect*

The category of "Effective Communication Skill, Self-expression" is prominent in the theme of required individual qualifications for an architect. Half of the students think that this matter is significant to be a successful architect. They regard this matter important as they are of the opinion that expressing one's opinions in a proper way to others, presenting his projects both verbally and in black and white and persuading others on his own views are of utmost significance to be a successful architect. Another category of " Being Patient, Ambitious, Determined" is also considered as important by the participants. This competence is constantly tested in their studio studies during their education.

Being creative and having a high level of imagination is observed to be an eye-catching qualification for an architect to create an architectural design in the students' remarks. Creativity and being critical is making new suggestions. It is also building new relations between things between which there have never been connections before (Yurtsever, 2011). It is, rather different from the usual, being distinct, innovative, authentic, problem solving and drawing new conclusions out of different solution methods (Çellek, 2002). Students in a notable number illustrate this category. 'Being open and inclined to group study' follows this category. An architect is supposed to work with people from different professions. Students are able to foresee the fact that exchanging ideas with their colleagues or other technical professionals from other engineering branches during their projects they conduct when they start off their career will undoubtedly oblige them to work in groups in certain periods.

### *4.4 Theme of Perceived Individual Qualifications*

When the table of this theme is studied, it is evident that 'Effective Communication Skills and Self-expression' category is highly prominent. Some of the students are of the opinion that they behold this quality required for an architect and the one to be open to different views and express thoughts to the concerned person in a proper way. This category is followed by 'Thinking creatively (high level of imagination). One of the main qualifications enable an architect to be successful and eye-catching is suggesting interesting ideas and conducting your project by performing new approaches different from others including your own colleagues. The study made by Ayyıldız Potur in 2007 on the subject of relations between an individual's level of creativity and performance of designing in the beginning of architecture education is paralleled with the perceptions of architecture students on this issue. Some of the students participated in the research believe that they already have this qualification. After creativity, 'being open to group study and social' category follows. Architecture, as a profession, may require working with different people from other professions during a production process. As stated in UIA/UNESCO's record of educational requirements of an architect, architecture is an important interdisciplinary branch including such important branches as demography, social and positive sciences, technology and creative arts. An architect, either during or after an architectural projects, may have to exchange ideas about his project with engineers of construction, technical and electricity as well as other experts of different fields in accordance with the context and qualifications of the project. Some of the students consider themselves competent with this quality. These categories are succeeded by categories of 'developing empathy', 'being patient, ambitious and determined'. some students assert that they are able to understand others by place themselves in other people's position and work patiently and determinedly during a project without giving in at all. Such qualities as high level of leadership, loving and enjoying working, being open to innovations and learning, interest in research, crisis management and problem solving skills, high level of care and awareness, tolerateness, quality of foreseeing, thinking authentically, being merciful, interest in fashion, decoration and aesthetic, planned and tidy working and responsibility are not that much taken into consideration by the students.

## 5. Suggestions

- Students consider that the requirements of an architect are thinking in 2 and 3 dimensions and being competent with computers. In order to be more competent with such kind of technical skills, the number of courses like model making, perspective and computer drawing programmes such as auto cad etc.should be augmented.
- More practice opportunities should be allowed so that the students can boost their self-confidence in their drawing competence. More convenient physical conditions for drawing both by hand and computer should be

provided. Thus, they can increase their self-trust by doing more practice. Furthermore, lecturers can also be more influential by encouraging their students on such kind of matters.

- Students' designing abilities should also be improved by adapting courses related with thinking strategies into the schedule. There also be a course on techniques of presentation so that students can improve their self-expression skills and present their studies more efficiently.
- More practices enabling students to improve their creativity and imagination should be allowed in studio courses in order that students can come up with outstanding projects.

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